

## 2. Point Sources

### 2.1 Introduction and scope

This inventory of ozone precursors (VOC, NO<sub>x</sub>, and CO) is one of two 2011 emissions inventory reports being prepared to meet US EPA reporting requirements. This inventory has been developed concurrently with a similar inventory for PM<sub>10</sub> and related pollutants (PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>x</sub>, and NH<sub>3</sub>) as part of Maricopa County's requirements under the respective SIPs.

In addition to preparing a periodic emissions inventory for the eight-hour ozone nonattainment area (NAA) as a commitment under the current ozone State Implementation Plan (SIP), the federal Air Emission Reporting Requirements (AERR) rule requires that state and local agencies prepare emissions estimates on a county basis, and submit data electronically to the US EPA for inclusion in the National Emissions Inventory (NEI) for 2011.

In order to provide consistency among all these inventories, it was decided to standardize the definition of a “point source” by adopting the designation of point sources as outlined in the AERR:

*We are basing the requirement for point source format reporting on whether the source is major under 40 CFR part 70 for the pollutants for which reporting is required, i.e., CO, VOC, NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, lead and NH<sub>3</sub> but without regard to emissions of HAPs... [T]his approach will result in a more stable universe of reporting point sources, which in turn will facilitate elimination of overlaps and gaps in estimating point source emissions, as compared to nonpoint source emissions. Under this requirement, states will know well in advance of the start of the inventory year which sources will need to be reported. (US EPA, 2008)*

This chapter contains several tables that provide information on point source emissions. Table 2.2–1 provides an alphabetical listing of all point sources and their location. Table 2.4–1 shows the annual and ozone season-day emissions of VOC, NO<sub>x</sub>, and CO for those point sources which reported emissions of one or more of these pollutants in 2011. Table 2.5–1 lists emission reduction credits for the area, while Table 2.6–1 summarizes point source emission totals for both Maricopa County and the eight-hour ozone nonattainment area. Note that the totals shown in tables may not equal the sum of individual values due to independent rounding.

### 2.2 Identification of point sources

The Maricopa County Air Quality Department (MCAQD) identified point sources within Maricopa County through its electronic permit system database, EMS, and the 2011 annual emissions reports submitted to the department. A total of 18 stationary sources were identified as point sources using the definition described in Section 2.1. While the Arizona Department of Environmental Quality (ADEQ) retains permitting authority for a limited number of industrial source categories in Maricopa County, no ADEQ-permitted facilities are considered point sources, and are addressed instead as area sources.

Table 2.2–1 contains an alphabetical listing of all point sources, including a unique business identification number, NAICS industry classification code, business name, and physical address.

**Table 2.2–1. Name and location of all point sources in Maricopa County.**

<b>ID #</b>	<b>NAICS</b>	<b>Business name</b>	<b>Address</b>	<b>City</b>	<b>ZIP</b>
3313	221112	APS West Phoenix Power Plant	4606 W Hadley St	Phoenix	85043
43063	221112	Arlington Valley LLC	39027 W Elliot Rd	Arlington	85322
127771	331111	CMC Steel Fabricators Inc	11444 E Germann Rd	Mesa	85212
44439	221112	Gila River Power Station	1250 E Watermelon Rd	Gila Bend	85337
3300	92811	Luke AFB – 56th Fighter Wing	14002 W Marauder St	Glendale	85309
44186	221112	Mesquite Generating Station	37625 W Elliot Rd	Arlington	85322
43530	221112	New Harquahala Generating Co	2530 N 491st Ave	Tonopah	85354
20706	32614	New Wincup Holdings Inc	7980 W Buckeye Rd	Phoenix	85043
1879	562212	Northwest Regional Landfill	19401 W Deer Valley Rd	Surprise	85387
1331	337122	Oak Canyon Manufacturing Inc	3021 N 29th Dr	Phoenix	85017
52382	221112	Ocotillo Power Plant	1500 E University Dr	Tempe	85281
42956	221112	Redhawk Generating Facility	11600 S 363rd Ave	Arlington	85322
303	332431	Rexam Beverage Can Company	211 N 51st Ave	Phoenix	85043
3315	221112	Santan Generating Station	1005 S Val Vista Rd	Gilbert	85296
4175	424710	SFPP LP Phoenix Terminal	49 N 53rd Ave	Phoenix	85043
3316	221112	SRP Agua Fria Generating Station	7302 W Northern Ave	Glendale	85303
3317	221112	SRP Kyrene Generating Station	7005 S Kyrene Rd	Tempe	85283
1210	337122	Trendwood Inc	2402 S 15th Ave	Phoenix	85007

### 2.3 Procedures for estimating emissions from point sources

Annual and season-day emission estimates were determined from annual source emissions reports, MCAQD investigation reports, permit files and logs, or telephone contacts with sources. For most of the sources, material balance methods were used for determining emissions. Emissions were estimated using the emission factors from AP-42, source tests, engineering calculations, or manufacturers' specifications.

MCAQD distributes annual emissions survey forms to nearly all facilities for which MCAQD has issued an operating permit. Facilities are required to report detailed information on stacks, control devices, operating schedules, and process-level information concerning their annual activities. (See Appendix A for a copy of the instructions to complete the emissions inventory.) These instructions include examples and explanations on how to complete the annual emissions reporting forms that facilities must submit to MCAQD.

After a facility has submitted an annual emissions report to MCAQD, emissions inventory staff check all reports for missing and questionable data, and check the accuracy and reasonableness of all emissions calculations with AP-42, the Factor Information and REtrieval (*webFIRE*) software, and other EPA documentation. Control efficiencies are determined by source tests when available, or by AP-42 factors, engineering calculations, or manufacturers' specifications. MCAQD has conducted annual emissions surveys for permitted facilities since 1988, and the department's database system, EMS, contains numerous automated quality assurance/quality control checks for data input and processing.

### 2.3.1 Application of rule effectiveness

Rule effectiveness reflects the actual ability of a regulatory program to achieve the emission reductions required by regulation. The concept of applying rule effectiveness in a SIP emissions inventory has evolved from the observation that regulatory programs may be less than 100 percent effective for some source categories. Rule effectiveness (“RE”) is applied to those sources affected by a regulation and for which emissions are determined by means of emission factors and control efficiency estimates.

For processes that claimed emissions reductions through the use of a control device, RE calculations were performed separately for Title V and non-Title V sources. Overall RE values of 91.81% (for Title V processes) and 87.81% (for non-Title V processes) were calculated.

Appendix B contains further details on the methods and data used in computing the above RE rates.

### 2.4 Detailed overview of point source emissions

Table 2.4–1 provides a summary of annual and season-day emissions from all point sources. All point sources are located within the eight-hour ozone nonattainment area, therefore, county and nonattainment area emissions are equal. Sources for which rule effectiveness has been applied are noted. Values of “0.00” and “0.0” for annual and daily emissions denote a value below the level of significance (0.005 tons/yr and 0.05 lbs/day, respectively).

**Table 2.4–1. Annual and season-day point source emissions, by facility.**

ID #	Business name		Annual emissions (tons/yr)			Ozone season day (lbs/day)		
			VOC	NO <sub>x</sub>	CO	VOC	NO <sub>x</sub>	CO
3313	APS West Phoenix Power Plant	*	28.43	596.56	80.92	163.6	4,162.0	422.6
43063	Arlington Valley LLC		0.52	38.68	24.12	8.7	605.4	377.5
127771	CMC Steel Fabricators Inc	*	23.63	34.05	455.94	226.7	318.6	4,376.6
44439	Gila River Power Station		10.40	194.22	53.43	93.9	1,777.7	501.0
3300	Luke AFB – 56th Fighter Wing	*	8.07	10.04	5.36	53.1	52.2	22.5
44186	Mesquite Generating Station	*	22.53	192.49	22.99	134.0	1,146.1	137.2
43530	New Harquahala Generating Co	*	15.50	23.24	35.24	169.0	251.0	386.3
20706	New Wincup Holdings Inc		125.98	11.82	2.10	684.0	65.1	12.9
1879	Northwest Regional Landfill		2.47	9.74	5.18	13.6	53.5	28.5
1331	Oak Canyon Manufacturing Inc		62.86			483.5		
52382	Ocotillo Power Plant		4.79	82.96	15.54	51.1	1,087.8	203.7
42956	Redhawk Generating Facility		5.61	150.82	168.87	26.6	813.2	890.8
303	Rexam Beverage Can Company		99.49	4.35	3.65	481.1	21.0	17.7
3315	Santan Generating Station	*	8.78	257.77	150.24	87.7	2,817.6	1,648.7
4175	SFPP LP Phoenix Terminal		101.15	4.89	5.53	556.6	36.2	47.4
3316	SRP Agua Fria Generating Station	*	1.88	104.92	25.55	32.2	1,900.1	481.8
3317	SRP Kyrene Generating Station		3.16	27.77	8.51	25.2	245.8	76.9
1210	Trendwood Inc		128.59			989.1		
<b>TOTAL:</b>			<b>653.84</b>	<b>1,744.32</b>	<b>1,063.18</b>	<b>4,279.8</b>	<b>15,353.4</b>	<b>9,632.0</b>

\* = Facility for which rule effectiveness has been applied.

### 2.5 Emission reduction credits

A major source or major modification planned in a nonattainment area must obtain emissions reductions as a condition for approval. These emissions reductions, generally obtained from

existing sources located in the vicinity of a proposed source, must offset the emissions increase from the new source or modification. The obvious purpose of acquiring offsetting emissions decreases is to allow an area to move towards attainment of the national ambient air quality standards while still allowing some industrial growth.

In order for these emission reductions to be available in the future for offsetting, they must be: 1) explicitly included and quantified as growth in projection-year inventories required in rate of progress plans or attainment demonstrations that were based on 1990 actual inventories, and 2) meet the requirements outlined in MCAQD Rule 240 (Permit Requirements for New Major Sources and Major Modification to Existing Major Sources).

Table 2.5–1 provides a list of emission reduction credits for VOC, NO<sub>x</sub>, and CO.

**Table 2.5–1. Emission reduction credits as of December 31, 2011.**

ID	Facility/ Owner	Reduction Date	Emission reduction credits (tons/yr)		
			VOC	NO <sub>x</sub>	CO
1151	Freescall Semiconductor, Inc.	3/1/2004	17.1	9.8	15.3
	Grey K Envl Fund, NYC	12/11/2006	80.0		
	Woodstuff Mfg	11/30/2007	17.6		
<b>TOTAL:</b>			<b>114.7</b>	<b>9.8</b>	<b>15.3</b>

## 2.6 Summary of point source emissions

Table 2.6–1 provides a summary of point source emissions for Maricopa County and the eight-hour ozone nonattainment area, including emission reduction credits.

**Table 2.6–1. Annual and season-day point source emissions (including emission reduction credits).**

Geographic Area	Annual (tons/yr)			Season-day emissions (lbs/day)		
	VOC	NO <sub>x</sub>	CO	VOC	NO <sub>x</sub>	CO
Maricopa County	768.54	1,754.12	1,078.48	4,908.3	15,407.1	9,715.8
8-hr ozone NAA	768.54	1,754.12	1,078.48	4,908.3	15,407.1	9,715.8

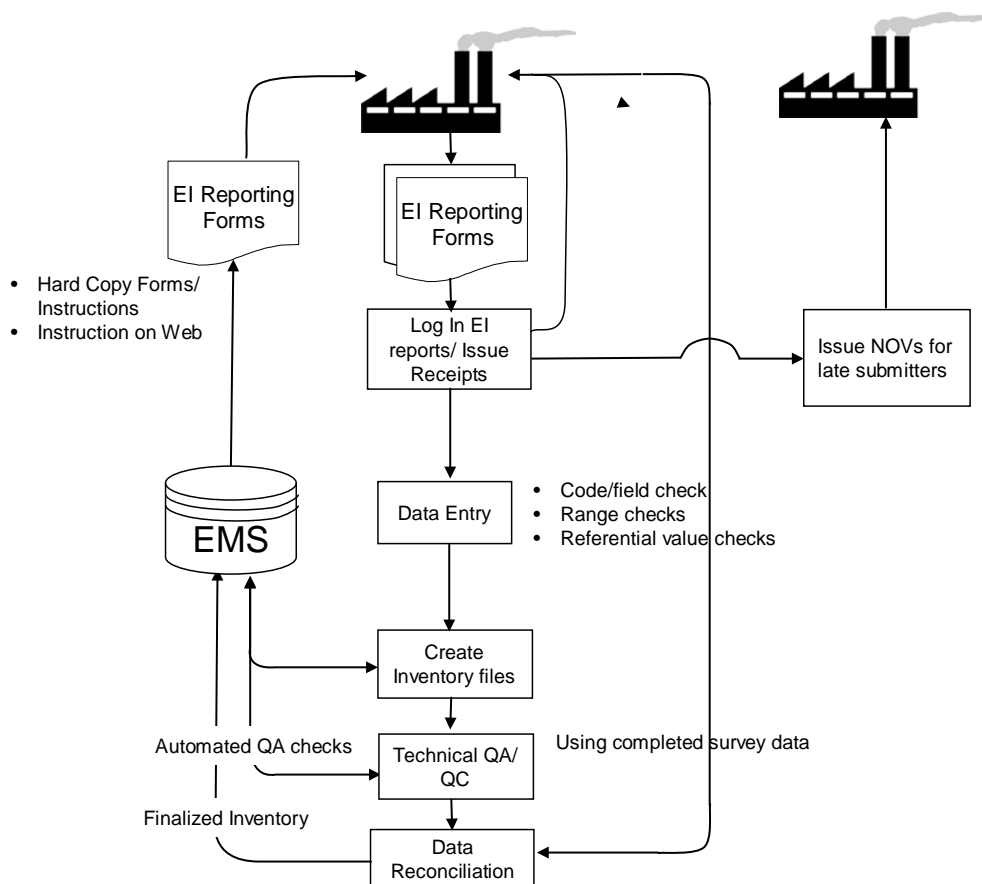
## 2.7 Quality assurance/quality control procedures

### 2.7.1 Emission survey preparation and data collection

The MCAQD's Emissions Inventory (EI) Unit annually collects point source criteria pollutant emission data from sources in the county. MCAQD annually reviews EPA guidance, documents from the Emissions inventory Improvement Program (EIIP), and other source materials to ensure that the most current emission factors and emission calculation methods are used for each year's survey. Each January, the EI Unit prepares a pre-populated hard copy of the preceding year's submissions and mails reporting forms to permitted sources, along with detailed instructions for completing the forms. (A copy of these instructions is included as Appendix A). The EI Unit asks sources to verify and update the data. The EI Unit also holds numerous workshops each spring to assist businesses in completing EI forms.

The general data flow for data collection and inventory preparation is shown in Figure 2.7–1.

**Figure 2.7–1. Data flow for annual point source emissions inventory reporting.**



### 2.7.2 Submission processing

Submitted EI reports are logged in as they are received, and receipts are issued for emissions fees paid. The data are input “as received” into the department's data base. During data entry, a variety of automated quality control (QC) checks are performed, including:

- pull-down menus to minimize data entry errors (e.g., city, pollutant, emission factor unit, etc.)
- mandatory data field requirement checks (e.g., a warning screen appears if a user tries to save an emission record with a missing emission factor).
- range checks (e.g., were valid SCC, Tier, SIC, and NAICS codes entered?)
- referential value checks (e.g., emission factor units, annual throughput units)
- automatic formatting of date, time, telephone number fields, etc.

Automated quality assurance (QA) checks on the report that has been entered include the following:

- Comparing reported emission factors to SCC reference lists
- Comparing reported emission factors to material name reference list

- Checking the report for calculation errors. This includes annual throughput, emission factors, unit conversion factors (e.g., BTU to therms), capture efficiency, primary / secondary control device efficiency, and any offsite recycling credits claimed.
- Checking the report for completeness of required data.

When data entry is complete, an electronic version of the original data is preserved separately to document changes made during the technical review and QA/QC process.

When errors are flagged, the businesses are contacted and correct information is obtained and input to the EMS. Outstanding reporting issues are documented. Confidential business information (CBI) is identified by a checkbox on the form, and these data elements are flagged during data entry and are not transmitted to the EPA.

To prepare the inventory for submittal to the National Emissions Inventory (NEI), the EI Unit has developed a series of MS-Access queries to extract data from EMS; and to append or convert codes, units of measure, etc., in order to create staging tables that adhere to the EPA's Consolidated Emissions Reporting Schema (CERS). These tables are then converted to XML files using EPA's Bridge conversion tool for submittal to the EPA's Emissions inventory System (EIS).

### ***2.7.3 Analysis of annual point source emissions data for this inventory***

Two air quality planners checked inventory accuracy and reasonableness, and assured that all point sources had been identified and that the methodology applied to calculate emissions was appropriate and that the calculations were correct. Other reasonableness checks were conducted by recalculating emissions using methods other than those used to make the initial emissions calculations and then comparing results. QA was conducted by checking all emissions reports submitted to MCAQD for the year 2011 for missing and questionable data and by checking the accuracy and reasonableness of all emissions calculations made for such reports. Notes concerning follow-up calls and corrections to calculations were documented on each 2011 annual emissions report.

The QA point source coordinator reviewed and checked calculations, identified errors, and performed completeness, reasonableness and accuracy checks.

## **2.8 References**

US EPA, 2008. Air Emissions Reporting Requirements: Final Rule. 73 Fed. Reg. 76539. Available at: [http://www.epa.gov/ttn/chief/aerr/final\\_published\\_aerr.pdf](http://www.epa.gov/ttn/chief/aerr/final_published_aerr.pdf).